

Db 121 ckrcpdgffsnetskakprkrhtcsavfqlitkgatnlnlcsngnsestqkcgidvtl 180
 Qy ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 142 CKRCPDGFFSNEISSKAPCRKHTCSAVFQLITKGATNLCSNGNSESTQKCGIDVTL 201
 Db 181 ceeefirfavptktppnwsvlvdnlpgtkvnasverikrhssqeqffqklwkhn 240
 Qy ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 202 CEEAFFRFAVPTKTPNWLSVLVDNLPGTKVNASEVERIKRHSSQEQFFQKLWKHN 261
 Db 241 kdqivkkliqddicenavqrighanltfeqrlsmeslgkkgvaedektiackp 300
 Qy ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 262 KDQDVKKLIQDDICENAVQRIGHANLTFEQRLSMESLGKKGVAEDEKTIACKP 321
 Db 301 sdqiklislwirkingdqdtlkglmalkshktyhfptvtqslkktlrlhsftmykly 360
 Qy ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 322 SDQIILKLSIWRKNGQDQDTLKGLMALKSHKTYHFPTVTQSLKKTIRFLHSFTMYKLY 381
 Db 361 qkiflemiqngqsvkisc1 380
 Qy ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 382 QKLFLEMIGNQVOSVKISCL 401

RESULT 2
 ID R99925; standard; Protein: 401 AA.
 AC R99925;
 DT 22-APR-1997 (first entry)
 DE Full length osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
 KW osteoporosis.
 OS Homo sapiens.
 FH Location/Qualifiers
 KEY Peptide 1..21
 FT /note= "Signal Peptide"
 FT Protein 22..401
 FT /note= "Nature OCIF-C20S"
 FT /label= C20S
 PN WO9526217-A1.
 PD 29-AUG-1995.
 PF 20-FEB-1996; J00374.
 PR 21-FEB-1995; JP-03477.
 PR 21-TUL-1995; JP-207508.
 PA (SNOW BRAND MILK PROD CO LTD. Mochizuki S, Morinaga T;
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
 DR N-PDB; T36685.
 PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
 PT for bone resorption control, esp. treatment of osteoporosis
 PS Disclosure; Page 64-65; 183PP; Japanese.

This sequence represents the full length osteoclastogenesis inhibitory factor (OCIF) of the invention. The OCIF has a molecular weight by SDS-PAGE of 60 kD under reducing conditions. The protein is adsorbed onto cation-exchangers or heparin and its activity is lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis. Sequence 401 AA;

Query Match 100.0%; Score 2861; DB 20; Length 401;
 Best Local Similarity 100.0%; Pred. No. 1.20e-278; Indels 0; Gaps 0;
 Matches 380; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 22 etfpkyhydeetshqllcdkcpptylkqbtakwtvcapcpdhytawhtsdec1 81
 Qy 22 ETFPKYHYDEETSHQLLCDKCPPTYLKQBTAKWTVCAPCPDHYTAWHTSDHECL 81
 82 ycspvckelqykecnrthnrvceckegeyleiefcikhrcspfgvqaagtpertv 141
 Qy 82 YCSPVCKELQYKECNRTHNRYCECKEGRYLEIEFCIKHRCSPFGVQAAGTPERTV 141
 Db 142 ckrcpdgffsnetskakprkrhtcsavfqlitkgatnlnlcsngnsestqkcgidvtl 201
 Qy 142 CKRCPDGFFSNETSSKAPCRKHTCSAVFQLITKGATNLCSNGNSESTQKCGIDVTL 201

RESULT 3
 ID R99932; standard; Protein: 401 AA.
 AC R99932;
 DT 22-APR-1997 (first entry)
 DE Mutated OCIF, OCIF-C20S
 KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
 KW osteoporosis.
 OS Synthetic.
 FH Location/Qualifiers
 KEY Peptide 1..21
 FT /note= "Signal Peptide"
 FT Protein 22..401
 FT /note= "Nature OCIF-C20S"
 FT /label= C20S
 PN WO9526217-A1.
 PD 29-AUG-1996.
 PF 20-FEB-1995; J00374.
 PR 21-JUL-1995; JP-207508.
 PA (SNOW BRAND MILK PROD CO LTD. Mochizuki S, Morinaga T;
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
 DR N-PDB; T33162.
 PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
 PT for bone resorption control, esp. treatment of osteoporosis
 PS Claim 32; Page 95-98; 183PP; Japanese.
 CC This sequence represents a mutated version of the full length
 CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This
 CC sequence represents OCIF-C20S in which the 20th Cys residue in the
 CC mature OCIF protein is substituted by Ser. The OCIF of the invention
 CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
 CC and 120 kD under non-reducing conditions. The protein is adsorbed onto
 CC cation-exchangers or heparin and its activity is lowered after 10 mins
 CC at 70 deg. C or 30 mins at 56 deg. C and is lost after 10 mins at 90
 CC deg. C. OCIF is useful in the control of bone resorption and therefore
 CC in the treatment and prevention of disorders of bone resorption, e.g.
 CC osteoporosis.
 SQ Sequence 401 AA;

Query Match 99.5%; Score 2847; DB 20; Length 401;
 Best Local Similarity 99.7%; Pred. No. 3.39e-277; Indels 0; Gaps 0;
 Matches 379; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 22 etfpkyhydeetshqllcdkcpptylkqbtakwtvcapcpdhytawhtsdec1 81
 Qy 22 ETFPKYHYDEETSHQLLCDKCPPTYLKQBTAKWTVCAPCPDHYTAWHTSDHECL 81
 82 ycspvckelqykecnrthnrvceckegeyleiefcikhrcspfgvqaagtpertv 141
 Qy 82 YCSPVCKELQYKECNRTHNRYCECKEGRYLEIEFCIKHRCSPFGVQAAGTPERTV 141
 Db 142 ckrcpdgffsnetskakprkrhtcsavfqlitkgatnlnlcsngnsestqkcgidvtl 201

Db 142 ckrcpdgffsnetskaperkhtnccsvfglltqkgnahdnicsgsneseaqkcgidtl 201
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 142 CKRCPDGFFSNETS KAPCRKHTNCCSVFGLLTQKGNAHDNICS GSNEAQKCGIDTL 201

Db 202 ceaaaffravptkftpnwslvvdnlpgtknaesverikrhssqeqtfllklwkhn 261
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 202 CEAAFFRAVPTKFTPNWSLVVDNLPGTKNAESTERIKHQSSQEQTOLKLWKHN 261

Db 262 kqddivkkiqdgldlensvqrighanltfeqrslimesipgkkygaaeiektikackp 321
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 262 KQDIVKKIQLIDLCENS VORHGHANLTFEQRSLMSLPGKKGAAEIEKTAKCP 321

Db 322 sdqkllkslwirkngdqtikglmalkhskyhfpktvtoslktriflhtfmykly 381
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 322 SDQKLKLSLWIRKNGDQDTLGMHALKHSKYHFPKTVTOSLKKTIRFLHSFTMVKLY 381

Db 382 qkfllemignqvsqvkisc 401
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 382 QKFLLEMIGNQVSQVKISL 401

JLT 6
 ID R99942; standard; Protein; 399 AA.
 AC R99942;
 DT 23-APR-1997 (first entry)
 DE Mutated OCIF, OCIF-CL.
 KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
 KW osteoporosis.
 OS Synthetic.

FH Key Location/Qualifiers
 FT Peptide 1..21
 FT /note= "Signal peptide"
 FT Protein 22..399
 FT /note= "Nature OCIF-CL"
 PN WO9626217-A1.
 PD 29-AUG-1996.
 PF 20-FEB-1995; JP-034977.
 PR 21-JUL-1995; JP-207508.
 PA (SNOW) SNOW BRAND MILK PROD CO LTD.
 PI Goto M., Higashio K., Kobayashi F., Mochizuki S., Morinaga T.;
 DR N-PSDB; T33172.
 PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
 PT for bone resorption control, esp. treatment of osteoporosis
 PS This sequence represents a mutated version of the full length
 mature OCIF protein in which amino acids 379-380 of the
 sequence represents OCIF-CL in which the 2nd Cys residue in the
 mature OCIF protein are deleted. The OCIF of the invention
 has a molecular weight by SDS-PAGE of 60 KD under reducing conditions
 and 120 KD under non-reducing conditions. The protein is adsorbed onto
 cation-exchangers or heparin and its activity is lowered after 10 mins
 at 70 deg.C or 30 mins at 55 deg.C, and is lost after 10 mins at 90
 deg.C. OCIF is useful in the control of bone resorption and therefore
 in the treatment and prevention of disorders of bone resorption, e.g.
 CC Sequence 399 AA;

Query Match Score 99.3%; Score 2840; DB 20; Length 399;
 Best Local Similarity 100.0%; Pred. No. 1.80e-276; Gaps 0;
 Matches 378; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 22 etppkkyhydeetshqlclcdkcpqgtkqhtakwtvcapcdphyydswhsdec1 81
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 22 ETPPK KYHYDEETSHQLC DCKCPQGT KQHTAKWTVCAPCDPHYY DSWHSDEC1 81

Db 82 ycspvcckelqyvqecnrhrvceckegryleiefckhrsscpfgwvqagtperntv 141
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 82 YCSPVCKELQYVQECNRHRVCECKEGRYLEIEFCKHRSSCPFGWVQAGTPERTV 141

Db 142 ckrcpdgffsnetskaperkhtnccsvfglltqkgnahdnicsgsneseaqkcgidtl 201
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 142 CKRCPDGFFSNETS KAPCRKHTNCCSVFGLLTQKGNAHDNICS GSNEAQKCGIDTL 201

Db 202 ceaaaffravptkftpnwslvvdnlpgtknaesverikrhssqeqtfllklwkhn 261
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 202 CEAAFFRAVPTKFTPNWSLVVDNLPGTKNAESTERIKHQSSQEQTOLKLWKHN 261

Db 262 kqddivkkiqdgldlensvqrighanltfeqrslimesipgkkygaaeiektikackp 321
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 262 KQDIVKKIQLIDLCENS VORHGHANLTFEQRSLMSLPGKKGAAEIEKTAKCP 321

Db 322 sdqkllkslwirkngdqtikglmalkhskyhfpktvtoslktriflhtfmykly 381
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 322 SDQKLKLSLWIRKNGDQDTLGMHALKHSKYHFPKTVTOSLKKTIRFLHSFTMVKLY 381

Db 382 qkfllemignqvsqvkis 399
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 382 QKFLLEMIGNQVSQVKIS 399

RESULT 7
 ID R99934; standard; Protein; 401 AA.
 AC R99934;
 DT 22-APR-1997 (first entry)
 DE Mutated OCIF, OCIF-C22S.
 KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
 KW osteoporosis.
 OS Synthetic.

FH Key Location/Qualifiers
 FT Peptide 1..21
 FT /note= "Signal peptide"
 FT Protein 22..401
 FT /note= "Nature OCIF-C22S"
 FT Misc_difference 277
 FT /label= C22S
 PN WO9626217-A1.
 PD 29-AUG-1996.
 PF 20-FEB-1996; J00374.
 PR 20-FEB-1996; JP-054977.
 PA (SNOW) SNOW BRAND MILK PROD CO LTD.
 PI Goto M., Higashio K., Kobayashi F., Mochizuki S., Morinaga T.;
 DR N-PSDB; T33164.
 PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
 PT for bone resorption control, esp. treatment of osteoporosis
 PS This sequence represents a mutated version of the full length
 mature OCIF protein in which the 2nd Cys residue in the
 sequence represents OCIF-C22S in which the 2nd Cys residue in the
 mature OCIF protein is substituted by Ser. The OCIF of the invention
 has a molecular weight by SDS-PAGE of 60 KD under reducing conditions
 and 120 KD under non-reducing conditions. The protein is adsorbed onto
 cation-exchangers or heparin and its activity is lowered after 10 mins
 at 70 deg.C or 30 mins at 55 deg.C, and is lost after 10 mins at 90
 deg.C. OCIF is useful in the control of bone resorption and therefore
 in the treatment and prevention of disorders of bone resorption, e.g.
 CC Sequence 401 AA;

Query Match Score 99.3%; Score 2841; DB 20; Length 401;
 Best Local Similarity 99.5%; Pred. No. 1.42e-276; Gaps 0;
 Matches 378; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Db 22 etppkkyhydeetshqlclcdkcpqgtkqhtakwtvcapcdphyydswhsdec1 81
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 22 ETPPK KYHYDEETSHQLC DCKCPQGT KQHTAKWTVCAPCDPHYY DSWHSDEC1 81

Db 82 yspvcckelqyvqecnrhrvceckegryleiefckhrsscpfgwvqagtperntv 141
 QY ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
 82 YCSPVCKELQYVQECNRHRVCECKEGRYLEIEFCKHRSSCPFGWVQAGTPERTV 141

Db	142 ckrcbdgffnetsskapcrkhncsvfglltqgnathdnicsgnsestqkgidvtl 201	Db	142 ckrcpdgffnetsskapcrkhncsvfglltqgnathdnicsgnsestqkgidvtl 201
Qy	142 CKRCBDGFFNETSSKAPCRKHNCNSVFGLLTQGNATHDNICSGNSESTQKGIDVTL 201	Qy	142 CKRCPDGFFNETSSKAPCRKHNCNSVFGLLTQGNATHDNICSGNSESTQKGIDVTL 201
Db	202 cearafirfaptkfpnwslvldpgtkvnaeverirkhsseqtqlklwkhn 261	Db	202 cearafirfaptkfpnwslvldpgtkvnaeverirkhsseqtqlklwkhn 261
Qy	202 CEEAFIRFAPTFKFPNWLSVLVLDPLPGTKVNAEVERIKRQHSSQEQTQFLKLWKHN 261	Qy	202 CEEAFIRFAPTFKFPNWLSVLVLDPLPGTKVNAEVERIKRQHSSQEQTQFLKLWKHN 261
Db	262 kdqivkkliqdidicnsvrghanhantfeqrslmeslpgkkvgaediktikaskp 321	Db	262 kdqivkkliqdidicnsvrghanhantfeqrslmeslpgkkvgaediktikaskp 321
Qy	262 KDQDVIKKIQLIDICENSVRGHANHTFEQRSLMESLPGKKVGAEDIKTICKASKP 321	Qy	262 KDQDVIKKIQLIDICENSVRGHANHTFEQRSLMESLPGKKVGAEDIKTICKASKP 321
Db	322 sdqinllslwrikqdgdlkgmhalksktkyhfptctqsikktrlhsmtykly 381	Db	322 sdqinllslwrikqdgdlkgmhalksktkyhfptctqsikktrlhsmtykly 381
Qy	322 SDQIQLLISLWRIKQDGDLKGMLHALKSHTYHFPTCTQSILKTRFLHSFTMVKLY 381	Qy	322 SDQIQLLISLWRIKQDGDLKGMLHALKSHTYHFPTCTQSILKTRFLHSFTMVKLY 381
Db	382 qklfleminqvgqskisl 401	Db	382 qklfleminqvgqskisl 401
Qy	382 QKLFLEMIGNQVQSKISL 401	Qy	382 QKLFLEMIGNQVQSKISL 401
RESULT			
ID	R99935 standard; Protein; 401 AA.	ID	R99948 standard; Protein; 393 AA.
AC	R99935;	AC	R99948;
DT	22-APR-1997 (first entry)	DT	23-APR-1997 (first entry)
DE	Mutated OCIF, OCIF-C23S.	DE	Mutated OCIF, OCIF-CBst.
KW	Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; osteoporosis.	KW	Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; osteoporosis.
OS	Synthetic.	OS	Synthetic.
PH	Location/Qualifiers	PH	Location/Qualifiers
FT	Key	FT	Key
FT	peptide 1..21	FT	peptide 1..21
FT	/note= "Signal peptide"	FT	/note= "Signal peptide"
FT	protein 22..401	FT	protein 22..393
FT	/note= "Mature OCIF-C23S"	FT	/note= "Mature OCIF-CBst"
FT	Misc-difference 400	FT	Misc-difference 392
FT	/label= C23S	FT	/label= Gln371Ieu
PN	WO9626217-A1.	PN	WO9626217-A1.
PD	29-AUG-1996.	PD	29-AUG-1996.
PR	20-FEB-1996; JPO-05477.	PR	20-FEB-1996; JPO-05474.
PR	21-JUL-1995; JP-207508.	PR	21-JUL-1995; JP-207508.
PA	(SNOW) SNOW BRAND MILK PROD CO LTD.	PA	(SNOW) SNOW BRAND MILK PROD CO LTD.
PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;	PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
PI	Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K,	PI	Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K,
DR	WPI; 96-402320/40.	DR	WPI; 96-402320/40.
PR	DR	PR	DR
PR	N-PSDB; T33165.	PR	N-PSDB; T33178.
PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful for bone resorption control, esp. treatment of osteoporosis	PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful for bone resorption control, esp. treatment of osteoporosis
CC	Claim 41; page 103-105; 183pp; Japanese.	CC	Claim 80; Page 126-128; 183pp; Japanese.
CC	This sequence represents a mutated version of the full length osteoclastogenesis inhibitory factor (OCIF) of the invention. This sequence represents OCIF-C23S in which the 23rd Cys residue in the mature OCIF protein is substituted by ser. The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kD under reducing conditions and 120 kD under non-reducing conditions. The protein is adsorbed onto cation-exchangers or heparin and its activity is lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis.	CC	These changes are caused by the introduction of a restriction site in the DNA encoding this protein. The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kD under reducing conditions and 120 kD under non-reducing conditions. The protein is adsorbed onto cation-exchangers or heparin and its activity is lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis.
CC	Sequence 401 AA;	CC	Sequence 393 AA;
Query Match	99.0%; Score 2833; DB 20; Length 401;	Query Match	97.7%; Score 2794; DB 20; Length 393;
Best Local Similarity	99.5%; Pred. No. 9.57e-276;	Best Local Similarity	99.7%; Pred. No. 1.05e-271;
Matches	378; Conservative 0; Mismatches 2; Indels 0; Gaps 0;	Matches	371; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db	22 ettpkkyhydeetshqilckdcpcpgtylkqhtcktwkvtcapcbhydtdwhsdesl 81	Db	22 ettpkkyhydeetshqilckdcpcpgtylkqhtcktwkvtcapcbhydtdwhsdesl 81
Qy	22 ETTPPKYHYDEETSHQILCKDCPCPGTYLKQHTCKTWKVTCAPCBHYDTHSDWHSDESL 81	Qy	22 ETTPPKYHYDEETSHQILCKDCPCPGTYLKQHTCKTWKVTCAPCBHYDTHSDWHSDESL 81
Db	82 ycsprckelqyqgcnrthnrvccckegyleifckikrsprcgpfqgyqagprerntv 141	Db	82 YCSPRCKELQYQGCGNRTHNRVCCCKEGYLEIFCKIKRSPRCGPFQGYQAGPRERTV 141
Qy	82 YCSPVCKELQYQGCGNRTHNRVCCCKEGYLEIFCKIKRSPRCGPFQGYVQAGTPERTV 141	Qy	82 YCSPVCKELQYQGCGNRTHNRVCCCKEGYLEIFCKIKRSPRCGPFQGYVQAGTPERTV 141

Db 142 ckrcdgffsnetskapcrkhtnsvfglltqkgnathdnicsgnsestqkcavdvtl 201
 Qy 142 CKRCDGFFSNETSSKAPCRKHTNSVFGLLTQKGNATHDNICSGNSESTQKCQDVTL 201

Db 202 cearafirfavptkffpnwslvldulgptkvnasverirkhssqeqtqlklwkhp 261
 Qy 202 CEARAFIRFAYPTKFFPNWLSVLVDNLPGTKVNAESVERIKRQHSSQEQTQQLKWHQN 261

Db 262 kdqdkkkkkqdkidcensvrighanlfegqslmeslpkvgvaediektikackp 321
 Qy 262 KDQDKKKKKQDKIDCENSVRIGHANLFEGQSLMESLPKVGVAEDIKTAKCP 321

Db 322 sdqdkllklswrikqgdqdklkgmalkh 351
 Qy 322 SDQDKLKLISWRIKQGDQDKLGMLHALKH 351

RESULT 12
 R99919 standard; Protein: 321 AA.
 R99919; 23-APR-1997 (first entry)

DE Mutated OCIF, OCIF-CSPh.

KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; OS Synthetic.

FH Location/Qualifiers

FT Key 1..21

FT /note "Signal peptide"

FT 22..321

FT Protein /note "Mature OCIF-CSPh"

FT /note "Mature OCIF-CSPh"

FT /note "Mature OCIF-CSPh"

FT /note "Position of deletion, delta 43-84"

FT WO966217-A1.

FT PD 29-AUG-1996.

FT PP 20-FEB-1996; JP-00374.

FT PR 20-FEB-1995; JP-054977.

FT PR 21-JUL-1995; JP-207508.

PA (SNOW) SNOW BRAND MILK PROD CO LTD.

PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;

PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;

DR WPI; 96-0232040.

DR N-PSDB; T33179.

PT DNA encoding osteoclastogenesis inhibitory factor protein - useful for bone resorption control, esp. treatment of osteoporosis

PT Claim 83; Page 128-129; 183pp; Japanese.

CC This sequence represents a mutated version of the full length osteoclastogenesis inhibitor factor (OCIF) of the invention. This sequence represents OCIF-CSPh in which amino acids 298-380 of the mature OCIF protein are replaced by Ser-Asp. These changes are caused by the introduction of a restriction site in the DNA encoding this protein. The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kD under reducing conditions and 120 kD under non-reducing conditions. The protein is adsorbed onto cation-exchangers or heparin and its activity is lowered after 10 mins at 50 deg.C. and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis.

CC Sequence 321 AA;

Query Match 78.0%; Score 2231; DB 20; Length 321;
 Best Local Similarity 100.0%; Pred. No. 1.84e-213; Indels 0; Gaps 0;
 Matches 297; Conservative 0; Mismatches 0; Dels 0; Gaps 0;

Db 22 etfpkkyhydeetshqldkckppgtylkghctakwtvcapcdphytawstsdec1 81
 Qy 22 ETFPKYLHYDEETSHQLDKCKPPGTYLKGHCTAKWTVCAPCDPHYTAWSTSDEC1 81

Db 82 ycsprckkqnetsskapcrkhtnsvfglltqkgnathdnicsgnsestqkgdvtl 141
 Qy 82 YCSPRKCKQNETSSKAPCRKHTNSVFGLLTQKGNAHDTNCGGNSSTQKGDVTL 141

Db 142 ckrcdgffsnetskapcrkhtnsvfglltqkgnathdnicsgnsestqkgdvtl 201
 Qy 142 CKRCDGFFSNETSSKAPCRKHTNSVFGLLTQKGNAHDTNCGGNSSTQKGDVTL 201

RESULT 13
 ID R99917 standard; Protein: 359 AA.
 R99917; 23-APR-1997 (first entry)

AC R99917

DE Mutated OCIF, OCIF-DCR2.

KW Osteoclastogenesis Inhibitory factor; OCIF; heparin; bone resorption; OS Synthetic.

FH Location/Qualifiers

FT Key 1..21

FT /note "Signal peptide"

FT 22..359

FT Protein /note "Mature OCIF-DCR2"

FT Misc difference 63..64

FT /note "Position of deletion, delta 43-84"

FT WO966217-A1.

FT PD 29-AUG-1996.

FT PP 20-FEB-1996; JP-00374.

FT PR 21-JUL-1995; JP-207508.

PA (SNOW) SNOW BRAND MILK PROD CO LTD.

PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;

PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;

DR WPI; 96-0232040.

DR N-PSDB; T33167.

PT DNA encoding osteoclastogenesis inhibitory factor protein - useful for bone resorption control, esp. treatment of osteoporosis

PT Claim 47; Page 107-109; 183pp; Japanese.

CC This sequence represents a mutated version of the full length osteoclastogenesis inhibitor factor (OCIF) of the invention. This sequence represents OCIF-CSPh in which amino acids 43-84 of the mature OCIF protein are deleted. The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kD under reducing conditions and 120 kD under non-reducing conditions. The protein is adsorbed onto cation-exchangers or heparin and its activity is lowered after 10 mins at 70 deg.C. or 30 mins at 56 deg.C. and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis.

CC Sequence 359 AA;

Query Match 77.5%; Score 2218; DB 20; Length 359;
 Best Local Similarity 89.4%; Pred. No. 4.06e-212; Indels 5; Mismatches 26; Dels 6; Gaps 6;
 Matches 312; Conservative 5; Mismatches 26; Indels 6; Gaps 6;

Db 15 skwktq-tetppkkyhydeetshq-l1cdk-oppgtvlqkghctakwtvcaceckry 70
 Qy 55 TAKWKTVCAPCPDH-YTDSWHTSDEC1CYCSPVKELQVVKQECNRTHNRC-ECKEGRY 112

Db 71 leicdklknsccpfgvqagtperntckrpdgffnetsskapcrkhtnsvfgll 150
 Qy 113 LEIECDKLKNSCCPFGVQAGTPERNTVCKRCPDGFFNETSSKAPCRKHTNSVFGLL 172

Db 131 ltqkgnathdnicsgnsestqkcavdvtlceearafirfavptkffpnwslvldulgptkv 190
 Qy 173 LTQKGNAHDTNCGSNSESTQKCIVDVTCEEARAFIRFAYPTKFFPNWLSVLVDNLPGKV 232

Db 191 naesverirkhssqeqtqlklwkhpqkdqdkkkqdkidcensvrighanlf 250
 Qy 233 NAESVERIKRQHSSQEQTQQLKWHQNQDKDVKKIQDIDCENSVRIGHANLF 292

Db 251 eqslsimeslpkvgvaediektikackpsdqkllklswrikqgdqtlkgmalkhs 310
 Qy 293 EQLRSIMESLPKVGVAEDIKTAKCPSDQKLLISWRIKNGDQTLKGMLHALKH 352

Db	311 ktvhpktvtqslkkirflhsftmyklyhkiflemignqavsvkisc 359	QY	322 SDQIKLULSRWIKNGDQDTIKGLMHALKHSKYHFKTVTQLKKTIRFLHSFTMVKLY 381
ID	R9938 standard; Protein; 360 AA.	ID	R9939 standard; Protein; 359 AA.
AC	R9938;	AC	R9939;
DT	23-APR-1997 (first entry)	DT	23-APR-1997 (first entry)
DE	Mutated OCIF, OCIF-DCR3.	DE	Mutated OCIF, OCIF-DeR4.
KW	osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; osteoporosis.	KW	osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; osteoporosis.
OS	Synthetic.	OS	Synthetic.
FH	Key	Location/Qualifiers	Key
FT	Peptide 1..21	FT	Peptide 1..21
FT	/note= "Signal peptide"	FT	/note= "Signal peptide"
FT	Protein 22..360	FT	Protein 22..359
FT	(note= "Mature OCIF-DCR3"	FT	(note= "Mature OCIF-DCR4"
FT	Misc_difference 105..106	FT	Misc_difference 143..144
FT	(note= "Position of deletion, delta 85-122"	FT	(note= "Position of deletion, delta 123-164"
PD	W09626217-A1.	PD	W09626217-A1.
PD	29-AUG-1996.	PD	29-AUG-1996.
PF	20-FEB-1995; JP-054977.	PF	20-FEB-1995; JP-054977.
PR	21-JUL-1995; JP-207508.	PR	21-JUL-1995; JP-207508.
PA	(SNOW) SNOW BRAND MILK PROD CO LTD.	PA	(SNOW) SNOW BRAND MILK PROD CO LTD.
PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T, Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H; DR WPI; 96-40320/40.	PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T, Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H; DR WPI; 96-40320/40.
PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful for bone resorption control, esp. treatment of osteoporosis	PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful for bone resorption control, esp. treatment of osteoporosis
PS	Claim 50; Page 109-111; 183pp; Japanese.	PS	Claim 53; Page 11-13; 183pp; Japanese.
CC	This sequence represents a mutated version of the full length osteoclastogenesis inhibitory factor (OCIF) of the invention. This sequence represents OCIF-DCR3 in which amino acids 85-122 of the mature OCIF protein are deleted. The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kd under reducing conditions and 120 kd under non-reducing conditions. The protein is adsorbed onto cation exchangers or heparin and its activity is lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis.	CC	This sequence represents OCIF-DCR4 in which amino acids 123-164 of the mature OCIF protein are deleted. The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kd under reducing conditions and 120 kd under non-reducing conditions. The protein is adsorbed onto cation-exchangers or heparin and its activity is lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis.
SO	Sequence 360 AA:	SO	Sequence 359 AA:
Query Match	st local Similarity 89 %; Pred. No. 6.78e-202; Length 360; matches 339; Conservative 0; Mismatches 0; Indels 38; Gaps 1;	Query Match	st local Similarity 88.7%; Pred. No. 9.12e-198; Length 359; matches 337; Conservative 0; Mismatches 1; Indels 42; Gaps 1;
Db	22 etfppkyhydeetsghlckdpptgylqkqctakvktvcapcpdyytawhtsdec1 81	Db	22 etfppkyhydeetsghlckdpptgylqkqctakvktvcapcpdyytawhtsdec1 81
QY	22 ETPPPKYLHYDEETSHTSHOLCDCKCPGTYLQKCTAKVKTVCAPCPDHYDWSHTSDEC1 81	QY	22 ETPPPKYLHYDEETSHTSHOLCDCKCPGTYLQKCTAKVKTVCAPCPDHYDWSHTSDEC1 81
Db	82 ycspvckelqyvqgecnrthrvrc-- 105	Db	82 ycspvckelqyvqgecnrthrvrccekgryleiefcikhrscppgfgyvqgrperntv 141
QY	82 YCSPVCKELQYVQECNRTHRVRCCEKGYLEIEFCLKHRSSCPFGVWQAGTPERTNV 141	QY	82 YCSPVCKELQYVQECNRTHRVRCCEKGYLEIEFCLKHRSSCPFGVWQAGPERNTV 141
Db	106 --rcpdfftsksskpcrkltncsyfqllitqkgnathdnicsnsensestqkcgvtl 163	Db	142 ck-----sgnsestqkcgvtl 159
QY	142 CKRPDPGFFSNETSSKAPCRKHTNCVSFGLLITOKGNATHDNICSGNSESTOKCGDVTL 201	QY	142 CKRPDPGFFSNETSSKAPCRKHTNCVSFGLLITOKGNATHDNICSGNSESTOKCGDVTL 201
Db	164 ceaaif-favpkfktpwlvslvdnlpgtkvnaesverirkqhssegtfqllkikhqn 223	Db	160 ceaaif-favpkfktpwlvslvdnlpgtkvnaesverirkqhssegtfqllkikhqn 219
QY	202 CBEAEFAEVETKETENWLSTLVNLDNUPGTKVNAEVEVERIRQHSSEQEPOLKLWKHQN 261	QY	202 CEEAEFAEVETKETENWLSTLVNLDNUPGTKVNAEVEVERIRQHSSEQEPOLKLWKHQN 261
Db	224 kgdikvkiqidlcensvqrhighanlfqqlrsimeslpkkgvaedektiackp 283	Db	220 kgdikvkiqidlcensvqrhighanlfqqlrsimeslpkkgvaedektiackp 279
QY	262 KQDQPKVKKIQDIDCNSVQRHIGHANLFQQLRSIMESLPGKKGVAEDELIETKACKP 321	QY	262 KQDQPKVKKIQDIDCNSVQRHIGHANLFQQLRSIMESLPGKKGVAEDELIETKACKP 321
Db	284 sqqkllslwlwknddqtlqlmhalhkshtyhfktvqtskirkflhsftmykly 343	Db	280 sqqkllslwlwkngdqdlklglmhalkshtyhfktvqtskirkflhsftmykly 339

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||||||||||||||||||||||||||||||||||||||||||||
QY 322 SDQILKULSLWRKINGDODTLKGMLHALKHSKYHFPKTVIQSLKKNTIRELHSFTMAYLY 381
Db 340 qklflemingqvgsvkscl 359
||||||||||||||||||||
QY 382 QKLLEMINGQVQSKSCL 401

Search completed: Wed Aug 20 09:52:27 1997
Job time : 64 secs.

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